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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/760,009 | 01/11/2001 | J. Wallace Parce | 01-050110US | 2750 |

22798 7590 06/02/2005

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| EXAMINER | |
|---|---|
| CHOI, LING SIU | |
| ART UNIT | PAPER NUMBER |
| 1713 | |

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/760,009 | PARCE ET AL. | |
| | Examiner | Art Unit | |
| | Ling-Siu Choi | 1713 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *46* is/are rejected.

7)☒ Claim(s) *1-45 and 47-70* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This Office Action is in response to the Amendment filed March 14, 2005. Claims 1-70 are now pending. Due to new claim objections and claim rejection under 112-2nd paragraph, this Office Action is made as a second non-final one.

### *Claim Objections*

2. Claims 1-70 are objected to because of the following informalities: Claim 1, line 3, "through the at least one microscale channel" is suggested to be changed to --through at least one microscale channel--.

Appropriate correction is required.

### *Claim Rejections - 35 USC 112*

3. **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

4. Claim 46 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 46 causes indefiniteness because it has improper dependence on claim 47.

***Allowable Subject Matter***

5. Claims 1-70 allowable over the closest references: Kopf-Sill (US 6,001,231).

| | |
|---|---|
| 1 | flowing a **first marker moiety** through the at least one microscale channel |
| 2 | flowing the fluidic material through the at least one microscale channel |
| 3 | flowing a **second marker moiety** through the at least one microscale channel |
| 4 | detecting the first markert moiety, resulting in detection of a first signal having a first area and a first retention time |
| 5 | detecting the second markert moiety, resulting in detection of a second signal having a second area and a second retention time |
| 6 | deconvoluting the first signal and the second signal to provide an indication of **flow rate** of the fluidic material, wherein the deconvoluting comprises identifying differences in **area and retention time** between two or more of the first signal, the second signal, a first selected standard, or a second selected standard |

(summary of claim 1)

Kopf-Sill disclose a method to monitor flow rate in microfluidic systems, the method comprising (a) flowing a first fluid along the first channel by applying a voltage gradient across a length of the first channel; (b) injecting a signaling compound into the first channel; (c) determining the **flow rate** of the first fluid in the first channel from **the rate at which the signaling compound flows from a first point to a second point in the first channel**; (d) flowing a second fluid different from the first fluid along the second channel; (e) determining the **flow rate** of the second fluid in the second channel from the **rate at which the signaling compound flows from a first point to a second point in the second channel**, wherein channel

1 and channel 2 intersect each other, which can be used to control the flow rate in the electroosmotically driven microfluidic system (abstract; claim 1). Kopf-Sill further disclose a program for a computer to monitor and control flow rate within the microfluidic device (col. 16, lines 34-36). However, Kopf-Sill does not teach or fairly suggest a method to monitor the flow rate, comprising deconvoluting measured area and retention time of first and second markers.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner=s supervisor, David Wu, can be reach on 571-272-1114.

**LING-SUI CHOI**
**PRIMARY EXAMINER**

May 25, 2005